

ABSTRACT

An etching composition and method is disclosed for removing an oxide sacrificial material during manufacture of semiconductor devices including micromechanical, microelectromechanical or microfluidic devices. The etching composition and method are based on the combination of hydrofluoric acid (HF) and sulfuric acid (H_2SO_4). These acids can be used in the ratio of 1:3 to 3:1 HF: H_2SO_4 to remove all or part of the oxide sacrificial material while providing a high etch selectivity for non-oxide materials including polysilicon, silicon nitride and metals comprising aluminum. Both the HF and H_2SO_4 can be provided as "semiconductor grade" acids in concentrations of generally 40 - 50% by weight HF, and at least 90% by weight H_2SO_4 .